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REAL PROPERTY & ENVIRONMENTAL LAW SECTION

**Protecting Groundwater:
Regulatory Authority of the
U.S. Corps of Engineers & Ohio
EPA**

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OHIO GROUNDWATER LAW PRESENTATION

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NOVEMBER 2, 2016

I. The Law of Groundwater Use

This section will address a brief history of Ohio's usufructuary groundwater rights scheme and the common law around withdraws.

Starting in 1861, Ohio adopted a common law groundwater ownership doctrine known by Ohio courts as the "absolute ownership" rule, which allowed landowners to withdraw any amount of groundwater underlying the land, no matter what effect of the withdrawal on other landowners who may be using the same aquifer. *Frazier v. Brown*, 12 Ohio St. 294 (1861) ("as between proprietors of adjoining lands, the law recognizes no correlative rights in respect to underground waters percolating, oozing or filtrating through the earth; hence, where a land owner digs a 'hole' on his own land for purposes connected with the use of his own land, thereby cutting off or diverting underground waters which have always been accustomed to percolate and ooze through his land to the land of an adjoining proprietor, and there to form the source of a spring and rivulet, any damage thereby occasioned to such adjoining proprietor is *damnum absque injuria*."). Nationally, this same ownership rule is known as the "rule of capture." The rule allows unlimited use of groundwater, but does not vest an ownership interest in that water to overlying landowners. Competing uses and interference with use are not protected by an absolute ownership rule.

In the 1980s, Ohio moved from a "rule of capture" state to a "reasonable use" state as described in the Restatement (Second) of Torts. *Cline v. American Aggregates Corp.*, 474 N.E.2d 324 (Ohio 1984). Under the reasonable use rule, individuals acquire rights to use (not possess) water by land ownership above it or connection to the relevant water body. That general principle remained unchanged from the absolute ownership rule. While landowners may continue to draw water from a common aquifer over which they own land, the reasonable use rule established two limitations on that use: (1) the groundwater must be beneficially used, and (2) one landowner cannot significantly harm another landowner's use.

In *Cline*, a sand, gravel, and stone quarry in Franklin County regularly pumped water from its quarry pits to allow it to extract limestone from its property. Twenty-six landowners surrounding the quarry filed suit alleging that their water wells were dewatered and polluted because of the pumping of the nearby quarry pits. Namely, the plaintiffs claimed that their properties and the quarry all "overlie a well-defined semi-artesian aquifer composed of glacial outwash till resting upon a bed of limestone rock." In recognition of the advancement of scientific knowledge of groundwater movement, the Ohio Supreme Court determined that the more equitable resolution of groundwater conflicts was to apply the Restatement's reasonable use rule.

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We'll discuss how the reasonable use rule has played out in a number of cases included in the downloadable materials, including *McNamara v. Rittman*, 838 N.E.2d 640 (Ohio 2005).

Since Ohio has a usufructuary scheme (not possessory) for water rights as described in *McNamara*, a question remains about actual ownership of groundwater. While the public trust doctrine in Ohio only applies to surface water, actual ownership of water by the state prior to lawful appropriation is implied in the ORC but never affirmatively stated. ORC §§ 1501.30-.35.

II. Regulation of Groundwater Use

This section will address administration and enforcement of the reasonable use of groundwater in Ohio. We will cover thresholds for registration and permitting of withdraws, restrictions for movement of water outside of the Lake Erie and Ohio River Basins, and potential causes of action for someone who is harmed by groundwater use.

In Ohio, facilities with the capability of withdrawing water in quantities greater than 100,000 gallons per day (approximately 70 gallons per minute) from "waters of the state," must register the withdraw facility with ODNR. ORC 1521.16. Lower thresholds for registration can be created by ODNR for "ground water stress areas." *Id.* Interestingly, the state is careful to note that registration is not a permit to withdraw and it doesn't impose restrictions on withdraws.

When seeking to transfer water from the Ohio River Drainage Basin to the Lake Erie Drainage Basin, Ohio requires a permit for diversions of more than an average of 100,000 gallons per day, over any 30-day period. ORC § 1501.32.

In addition, a permit must be sought for a new or increased "consumptive use" of more than 2 million gallons of water per day averaged over a 30-day period. ORC § 1501.33. Consumptive use is defined as the use, not a diversion, of water resulting in a loss of that water to the basin from which it is withdrawn. Evapotranspiration, evaporation, incorporation of water into a product (including hydraulic fracturing fluids or drilling muds) is included here.

If diverting water from the Lake Erie Drainage Basin into the Ohio River Basin, the Great Lakes-St. Lawrence River Basin Water Resources Compact, known as the Great Lakes Compact, applies. The Compact prohibits new and increased diversions from the Lake Erie Drainage Basin with very few exceptions.

For consumptive uses in the Lake Erie Drainage Basin, all proposals for new or increased consumptive uses of 5 million gallons per day or more as averaged over any 90-day period must be submitted to all of the 8 Great Lakes States and the Canadian provinces of Ontario and Quebec for notice and comment. Permits are required for facilities with capacity for both

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withdraws and consumptive uses of 1 million gallons per day averaged over any 90-day period from either ground or surface water in the Lake Erie Drainage Basin. ORC § 1522.12.

III. Regulations on Water Wells

This section will briefly cover water well construction and quality requirements in Ohio, which are administered and enforced by the Ohio EPA and the Ohio Department of Health.

The Ohio EPA regulates public water suppliers and the drilling, operation, maintenance, and abandonment of public water wells and monitoring wells. ORC § 6111.42; OAC § 3745-9-02. Construction and inspection requirements are made for the purpose of preventing contamination of ground water.

The Ohio Department of Health regulates the construction, quality, and location of private water systems constructed after January 1, 1981. OAC § 3701-28-02. Where groundwater contamination is a problem, the alternatives to drilling a new water well are typically hooking up to a public water supply OR considering rainwater collection. We'll look at whether the later fits into DOH's private water system rules.

IV. Protection of Underground Sources of Drinking Water: the Safe Drinking Water Act

This section will address US Environmental Protection Agency, ODNR, and Ohio EPA regulation of the underground injection of wastewater through the underground injection control program. We will cover considerations in the permitting process for all types of UIC wells, whether the law adequately allows consideration of important impacts from injection such as earthquakes, and how, if at all, hydraulic fracturing fluids fit under the SDWA legal scheme.

The term "underground injection" (A) means the subsurface emplacement of fluids by well injection; and (B) excludes (i) the underground injection of natural gas for purposes of storage; and (ii) the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities. 42 U.S.C.A. § 300h(d)(1).

The Safe Drinking Water Act, like most pollution control statutes, contains a basic prohibition: "[Permitting authorities] shall prohibit any underground injection which is not authorized by a permit." 42 U.S.C.A. § 300h(b)(1)(A). The standard applied for authorization of underground injection is that a permit may be issued if "the applicant for the permit to inject satisf[ies] the

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State that the underground injection will not endanger drinking water resources." 42 U.S.C.A. § 300h(b)(1)(B). Endangerment is defined in the statute as follows:

Underground injection endangers drinking water sources if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.

42 U.S.C.A. § 300h(d)(2).

EPA has issued regulations that define the underground sources of drinking water (USDWs) that must be protected as "an aquifer or its portion which contains a sufficient quantity of ground water to supply a public water system; and contains fewer than 10,000 mg/l total dissolved solids." 40 C.F.R. § 144.3(a)(2)(ii).

To give you a few comparative examples of state statutory language related to underground injection control, here is Texas' standard: "The Commission may issue a permit if it finds...that, the use or installation of the injection well is in the public interest, and that, with proper safeguards, both ground and surface fresh water can be adequately protected from pollution..." Tex. Water Code Ann. § 27.051(a)(1), (3).

In Ohio, the statutory standard for authorizing injection is stated as: "whether the application demonstrates that the proposed activities will not comply or will pose an unreasonable risk of inducing seismic activity, inducing geologic fracturing, or contamination of an underground source of drinking water." ORC § 6111.044.

The issues that typically come up in UIC permitting are very technical and include:

- The extent of the applicant's investigation of site specific geologic characteristics & the permitting authority's use of the "best evidence." This matters because the inputs into predictive modeling, sometimes called reservoir modeling, determine the proper pressure limits. In addition, this information can help regulators, the permittee, and the public to determine areas where upward migration of the wastewater to USDWs could occur through faulting or abandoned wells.
- Seismicity & cumulative impacts. The risk of overpressurization can be evaluated and properly limited prior to permit issuance.

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In the post-permitting phase (after well construction), regulators, the permittee, and the public face additional issues that could cause a revisiting of the permit. These issues include mechanical integrity tests, which notably cannot predict long-term impacts regarding seismicity; maximum pressure exceedances; and the potential for well failure.

IV. Wetlands

This section will discuss wetlands permitting and mitigation as administered by the Ohio EPA and the US Army Corps of Engineers.

Ohio's wetlands are defined by a 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual as "those areas that are inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions... [including] swamps, marshes, bogs, and similar areas that are delineated in accordance with the [1987 Manual] and any other procedures and requirements adopted by the [Army Corps] for delineating wetlands." OAC § 3745-1-02(90).

Ohio has two methods of regulating wetlands: (1) through the Federal Clean Water Act's section 401 water quality certification process for U.S. Army Corps of Engineers section 404 permits, and (2) through Ohio's Isolated Wetland Law, which prohibits the "filling of an isolated wetland" or the "discharge dredged material into isolated wetlands" without a permit. ORC §§ 6111.021, 6111.028.

Decisionmaking on both 401 and isolated wetlands permit applications is governed by a variety of factors, including quantitative methodologies to classify wetlands and determine the level of regulation and review for each application. ORC § 6111.02(A); OAC § 3754-1-54. Qualitative assessments are also factored into decisionmaking. Wetlands receive various levels of protection depending on the category of ecological significance. Level 1 review is used for Category 1 and 2 isolated wetlands of ½ acre or less. ORC § 6111.022. Level 2 review applies to Category 1 isolated wetlands equal to ½ acre or more or Category 2 isolated wetlands between ½ acre and 3 acres. ORC § 6111.023. Level 3 reviews are applicable to Category 2 isolated wetlands larger than 3 acres and all Category 3 isolated wetlands. ORC § 6111.024.

For 401 certification, if a category 3 wetland is at issue, temporary and permanent impacts to those high quality wetlands are prohibited. Category 1 and 2 wetland impacts are limited to ½ acre except for surface coal mining. Where impacts are expected, wetlands mitigation rules must be applied that prioritize impact avoidance and mitigation over "compensatory mitigation." OAC § 3745-1-50.

Underground injection control

As a method of shale gas wastewater disposal

What can you do?

- ❖ Use the statute!
- ❖ Ensure permitting authority is allowing full public participation by providing all inputs for modeling & full rationale regarding seismicity determination.
- ❖ Employ a geologist to review permit applications.

What is underground injection?

The term “underground injection”

- (A) means the subsurface emplacement of fluids by well injection; and
- (B) excludes (i) the underground injection of natural gas for purposes of storage; and (ii) the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities.

42 U.S.C.A. § 300h(d)(1)

The basic prohibition

“[Permitting authorities]...shall prohibit...any underground injection...which is not authorized by a permit...”

42 U.S.C.A. § 300h(b)(1)(A).

The standard

A permit may be issued if:

“...the applicant for the permit to inject...satisf[ies] the State that the underground injection will not endanger drinking water sources....”

42 U.S.C.A. § 300h(b)(1)(B).

What is endangerment?

“Underground injection endangers drinking water sources if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.”

42 U.S.C.A. § 300h(d)(2).

What is a drinking water source?

EPA has issued regulations that define the underground sources of drinking water (USDWs) that must be protected as “an aquifer or its portion...which contains a sufficient quantity of ground water to supply a public water system; and...contains fewer than 10,000 mg/1 total dissolved solids.”

40 C.F.R. § 144.3 (definition of underground source of drinking water (a)(2)(ii)).

UIC Statutory Language: Texas

“The Commission may issue a permit if it finds...that, the use or installation of the injection well is in the public interest, and that, with proper safeguards, both ground and surface fresh water can be adequately protected from pollution....”

Tex. Water Code Ann. § 27.051(a)(1), (3).

UIC Statutory Language: Ohio

“...whether the application demonstrates that the proposed activities will not comply or will pose an unreasonable risk of inducing seismic activity, inducing geologic fracturing, or contamination of an underground source of drinking water.”

Ohio Rev. Code Ann. § 6111.044.

Issues in Permitting

- ❖ Extent of applicant's investigation of site specific geologic characteristics & permitting authority's use of “the best evidence”
 - ❖ Matters because:
 - ❖ inputs into a predictive model (reservoir modeling) to determine proper pressure limits
 - ❖ Identifies areas where upward migration to USDWs could occur (faulting, abandoned wells)
- ❖ Seismicity & cumulative impact
 - ❖ Over pressurization due to many permitted wells

Post-permitting issues

- ❖ Mechanical integrity tests
 - ❖ Notably, cannot predict long-term impact regarding seismicity
- ❖ Maximum pressure exceedances
- ❖ Well failure potential

What can you do?

- ❖ Use the statute!
- ❖ Ensure permitting authority is allowing full public participation by providing all inputs for modeling & full rationale regarding seismicity determination.
- ❖ Employ a geologist to review permit applications.